CLAIMS

1. Device for fixing blades or similar elements to plates mounted transversely on a rotary shaft and being rotationally integral therewith, the blades projecting beyond the plates, characterized in that each plate (4) has at least one cut-out (12h, 12i, 12j) made in one of the flanks of the plate opening out laterally at the periphery of the plate (4) and embodied such that they can receive in an interlocking manner and radially retain a planar additional part acting as a support foot (L2) for a blade (L) so that the outside lateral face of the part forming a support foot (L2) is flush with the corresponding outer face of the flank of the plate (4), and in that the plates (4) are mounted one after the other on the rotary shaft (3) and axially and jointedly packed against each other by axial tightening means (19, 21, 22) allowing the successive flanks of the plates (4) opposite to the flanks each of which has at least one cut-out, to be forced against these latter flanks and against the parts forming support foot (L2) of the blades (L) to completely lock them in their respective cut-outs.

2. Device according to claim 1, characterized in that the axial tightening means can be loosened in a controlled way to allow an axial separation along the rotary shaft (3) between adjacent plates (4) by a given value and the lateral and radial removal of one of the blades (L) from its cut-out, between two separated adjacent plates (4).

3. Device according to claim 1 or 2, characterized in that the axial tightening means include an end plate (19) fixed by flanging to one end of the rotary shaft (3) and transversely thereto, an axial thrust plate (21) adjacent

to the end plate (19) and slidably mounted on the rotary shaft (3), and means (22) integral with the end plate (19) that exert on the thrust plate (21) an axial effort forcing together the blade (L) support plates (4) held axially at the opposite end of the rotary shaft (3) by a drive plate (5) of the shaft (3) that is transversely integral therewith.

4. Device according to claim 3, characterized in that the above-mentioned means include several screws (22) passing through the end plate (19), being regularly spaced coaxially to the rotary shaft (3) and secured to the end plate (19) in an axially adjustable position so that their free ends are pressed against the adjacent face of the thrust plate (21) to exert upon said thrust plate the specific axial effort to tighten the blade (L) support plates (4) against each other, the screws (22) being able to be loosened and moved transversely at the end plate (19) to allow the axial separation between adjacent blade (L) support plates (4).

5. Device according to claim 4, characterized in that the thrust plate (21) includes several regularly spaced through-holes (24) that can be lined up, after a slight loosening of the thrust screws (22), to face the free ends of the thrust screws (22) by rotating the plate (21) a specific angle value relative to the rotary shaft (3) to allow the plate (21) to be brought axially to a stop relative to the end plate (19) so that the axial separation between adjacent blade support plates (4) appreciably corresponds to the thickness of the thrust plate (21).

6. Device according to claim 4 or 5, characterized in that each thrust screw (22) is secured to the end plate (19) by a nut and lock-nut assembly (23)

situated between the thrust plate (21) and the end plate (19).

7. Device according to any of the preceding claims characterized in that the blades (L) are fixed to their respective support plates (4) by being angularly offset relative to each other from one plate to the next so that the blades (L) are distributed in a helical configuration along the rotary shaft (3).

8. Device according to any of the preceding claims, characterized in that each plate (4) has three lateral cut-outs for receiving respectively three blades (L) placed at a 120° angle relative to each other.

9. Device according to any of the preceding claims, characterized in that the blade (L) support plates (4) are made rotationally integral with each other by pins (17) transversely integral with the plates (4), being arranged concentrically to the rotary shaft (3) and engaging respectively in the holes (18) of the adjacent plates (4) arranged concentrically to the rotary shaft (3).

10. Device according to claim 9, characterized in that each plate (4) has three regularly spaced pins (17) projecting from the side of the plate (4) opposite to the one having at least one blade (L) and engaging respectively in three holes (18) in the adjacent plate (4) situated on the side opposite to the one having at least one blade (L) of the adjacent plate (4).

11. Device according to claim 9 or 10, characterized in that the pins (17) of a plate (4) are angularly offset relative to the opposite pins (17) of the adjacent plate (4) so that the blades (L) are angularly offset from each other along the rotary shaft (3).

12. Device according to any of claims 9 to 11, when considered in combination with claim 3, characterized in that the plate adjacent to the drive plate is rotationally integral with this plate by pins integral with the plate, preferably three in number, arranged concentrically to the rotary shaft and projecting from the same side of the plate and engaging respectively in the holes made in the drive plate concentrically thereto.

13. Device according to any of the preceding claims, characterized in that each lateral cut-out of a plate (4) extends in a plane parallel to the flank of the plate (4), opening out laterally from this flank, and has a lower support edge (12j) of the end of support foot (L2) of a blade (L) and two circumferentially spaced side edges (12i) extending through the plate (4) above the lower edge (12j) while forming a specific angle to each other and serving as support respectively for the two opposite sections of the part acting as the support foot (L2) of the blade (L), each lateral edge (12i) of a cut-out having a mounting boss (12h) that engages in a conjugate recess (L21) of the support foot (L2) of the blade (L) to radially hold the latter to the respective plate (4).

14. Device according to claim 13, characterized in that the lateral edge (12i) of a cut-out has a slope that is different from its other lateral edge (12i) so as to constitute, with their respective mounting bosses (12h), foolproof means of mounting the blade (L) in its cut-out.

15. Device according to claim 13 or 14, characterized in that the lateral edges of the cut-out diverge toward the outer periphery of the corresponding plate (4).

16. Device according to any of claims 13 to 15, characterized in that each cut-out of a plate (4) is made directly in the flank of the plate.

17. Device according to any of claims 13 to 15, characterized in that each cut-out of a plate (4) is made in a planar part (12) inserted in a socket (11) of conjugate shape made in the flank of the plate (4), the insert (12) being generally U-shaped the side arms (12a) of which are pressed, by their opposite outer edges (12c), respectively against the two radial edges (11a) of the socket (11) and having at their inner edges (12i) respectively opposite the two mounting bosses (12h) directed toward each other, the two outer edges (12c) of the side arms (12a) of the insert (12) having respectively two shoulders (12e) near the ends of the arms and each resting on one stop edge (11c) appreciably perpendicular to the corresponding radial edge of the socket (11) where the insert (12) is seated, the two stop edges (11c) being situated near the outer periphery of the plate on the same circumference between the two radial edges (11a) of the socket.

18. Device according to claim 17, characterized in that the two arms (12a) of the insert (12) each terminate in a radial tenon (12f) seated in the socket (11) and being supported on one side on one radial edge (11d) of the socket (11) connecting to the associated stop edge (11c) so that the two radial edges (11c) facing each other define the opening that opens out into the outer periphery of the corresponding plate (4).

19. Device according to claim 17, characterized in that one of the mounting bosses (12h) of each insert (12) projects outside the corresponding plate and

serves as pivoting means of a blade (2) when it is mounted in the insert (12).

20. Device according to any of the preceding claims, characterized in that each blade (L) support foot (L2) of a plate (4) is held laterally in its cut-out when the plate (4) is separated from the adjacent plate (4) to remove a blade (L), by a radial strip (15) one end (15a) of which is integral with the plate (4) and the opposite free end (15b) elastically presses against the lateral face of the support foot (L2) of the blade (L), the adjacent plate (4) having a radial groove (25) to seat the elastic strip (15).

21. Device according to any of claims 1 to 19, characterized in that each support foot (L2) of a blade (L) of a plate (4) is held laterally in its cut-out, when the plate (4) is separated from the adjacent plate to remove a blade (L), by a magnet (28) fixed at the bottom of the cut-out (12h, 12i, 12j).

22. Device according to any of claims 17 to 19, characterized in that each insert (12) is removably fixed in its socket (11) on one side by an elastic hold-down tab (26) and the other side by a holding block (27).

23. Device according to any of the preceding claims, characterized in that the blades (L) project radially outside their respective plates (4).

24. Agricultural machine fitted with a rotary shaft (3) with plates (4) carrying blades (L), such as a harrow, characterized in that the blades (L) are fixed to the plates (4) by a device according to any of the preceding claims.